

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently amended) Built-up multiple cam for a camshaft, comprising:

a first partial cam (1) having a bore (12), a cam contour A (4) and a joint contour (7) which is disposed axially adjacent thereto and comprises an outer surface (7a),

a second partial cam (2) having a bore (12), a cam contour A (5) and a joint contour (8) which is disposed axially adjacent thereto and comprises an outer surface (8a),

a ring (3) having a cam contour B (6), which is different from the cam contour A, and an inner contour (9) which comprises an inner surface (9a), wherein the ring (3) can be slid with its inner surface (9a) on to the outer surfaces (7a, 8a) of the partial cams (1, 2), and

connection means which are effective between the ring (3) and the partial cams (1, 2) and ensure a firm connection between these components.

2. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the inner contour (9) of the ring (3) and the joint contours (7, 8) of the partial cams (1, 2) are non-circular.

3. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the connection means which are effective between the ring (3) and the partial cams (1, 2) are formed as an interference fit and/or form-fit.

4. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein at least one of the two partial cams (1, 2) in the region of the transition from the joint contour (7, 8) to the cam contour (4, 5) there is disposed a shoulder (13) which protrudes in a radial direction beyond the outer surface (7a, 8a) of the partial cam (1, 2).

5. (Currently amended) Built-up multiple cam as claimed in claim 4, wherein the shoulder ~~(13)~~ is formed in one piece with the partial cam ~~(1, 2)~~ e.g. as a radius ~~or chamfer~~.

6. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the axial extension of the ring ~~(3)~~ is greater than the sum of the axial extensions of the joint contours ~~(7, 8)~~.

7. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the outer surfaces ~~(7a, 8a)~~ are provided with engraving ~~which has been applied e.g. by roller burnishing or by knurling.~~

8. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the inner ring surface ~~(9a)~~ comprises engraving or an axially extending toothing arrangement.

9. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein the inner contour ~~(9)~~ of the ring ~~(3)~~ comprises a radial widened portion on its axial end regions.

10. (Currently amended) Built-up multiple cam as claimed in claim 1, wherein in at least one end region of at least one of the partial cams (1, 2), the bore (12) comprises an inner contour (12a, 12b) which is widened in a funnel-like manner with respect to the bore (12).

11. (Previously amended) Built-up camshaft having at least one multiple cam as claimed in claim 1.

12. (Currently amended) Method of producing built-up camshafts having at least one multiple cam (15) as claimed in claim 1, comprising the steps of:

assembling the multiple cam as a preassembly;

sliding the preassembled multiple cam on to a support shaft (10) up to a predetermined portion (14) of the support shaft (10); and

fixing the multiple cam in an axial and torsion-resistant manner on this predetermined portion (14) of the support roller (10).

13. (Currently amended) Method of producing built-up cam shafts having at least one multiple cam (15) as claimed in claim 1, comprising the steps of:

providing a support shaft (10) which comprises at least one portion (14) which has been surface-finished by roller-burnishing or by knurling such that it comprises a larger outer diameter than the portions of the support shaft (10) which have not been machined,

sliding the first partial cam (1), the ring (3) and the second partial cam (2) on to a portion of the support shaft (10) whose outer diameter has not been increased by roller-burnishing or by knurling and which adjoins the surface-finished portion (14), wherein the sliding-on procedure is performed in such a manner that the joint contours (7, 8) of the partial cams (1, 2) face towards the ring (3) and the desired angular position of the partial cams (1, 2) and of the ring (3) with respect to the support shaft (10) is adjusted, and

pressing-on the first partial cam (1), the ring (3) and the second partial cam (2) by sliding these components together on to the surface-finished portion (14) of the support shaft (10), wherein the ring (3) slides with its inner surface (9a) over the outer surfaces (7a, 8a) of the partial cams (1, 2), so that the multiple cam is formed and is fixed with a force-fit and/or form-fit in an axial and torsion-resistant manner at the designated position (portion (14)).

14. (Currently amended) Method of producing built-up cam shafts which comprises a support shaft (10), ~~e.g. a tube or a bar,~~ having at least one multiple cam (15) as claimed in claim 1, having at least three cam contours which are disposed axially adjacent to each other, wherein, in each case alternately until the required number of cam contours is achieved:

initially a first partial cam (1) comprising a cam contour,

followed by a ring (3) comprising a cam contour, and

then a further partial cam (2) comprising a cam contour

are slid over the support shaft (10) and are then attached to the support shaft (10) in an axial and torsion-resistant manner at the predetermined axial location with predetermined radial angles in order to form the multiple cam (15).

15. (Currently amended) Method of producing built-up camshafts as claimed in claim 12, wherein in order to attach at least one of the partial cams (1, 2) a welding beam (X), ~~e.g. a laser or electron beam~~ is guided through the partial cam (1, 2) radially at the axial position, at which the ring (3) is spaced apart with

a gap (16) from the partial cam (1, 2) which is to be welded, and therefore the partial cam (1, 2) is welded to at least certain points of the support shaft (10).

16. (New) Built-up multiple cam as claimed in claim 1, wherein the connection means which are effective between the ring and the partial cams are formed as a form-fit.

17. (New) Built-up multiple cam as claimed in claim 4, wherein the shoulder is formed in one piece with the partial cam as a chamfer.

18. (New) Built-up multiple cam as claimed in claim 1, wherein the outer surfaces are provided with engraving which has been applied by roller-burnishing.

19. (New) Built-up multiple cam as claimed in claim 1, wherein the outer surfaces are provided with engraving which has been applied by knurling.

20. (New) A method according to claim 14, wherein the support shaft is a tube.

21. (New) A method according to claim 14, wherein the support shaft is a bar.

22. (New) A method according to claim 15, wherein the welding beam is a laser.

23. (New) A method according to claim 15, wherein the welding beam is an electron beam.